



\_\_\_\_\_ 7. The  $-\sqrt{16}$  belongs to the following set(s) of numbers:

- a. Irrational and Real
- b. Whole, Integer, Rational, and Real
- c. Integer, Rational, and Real
- d. Rational and Real

\_\_\_\_\_ 8. Which is the correct equation when  $I = Prt$  is solved for  $r$ ?

- a.  $r = I - Pt$
- b.  $r = \frac{I}{Pt}$
- c.  $r = \frac{I}{P} - t$
- d.  $r = \frac{Pt}{I}$

\_\_\_\_\_ 9. When  $S = 180(n - 2)$  is solved for  $n$ , which of the following is correct?

- a.  $n = \frac{S - 360}{180}$
- b.  $n = \frac{S + 2}{180}$
- c.  $n = S - 90$
- d.  $n = \frac{S}{180} + 2$

\_\_\_\_\_ 10. Yuki simplified the expression  $(2x + 7) - (3x - 2)$  using the following steps.

$$(2x + 7) - (3x - 2)$$

$$\text{Step 1: } (2x + 7) + (-3x + 2)$$

$$\text{Step 2: } [2x + (-3x)] + (7 + 2)$$

$$\text{Step 3: } (2x - 3x) + (7 + 2)$$

$$\text{Step 4: } -x + 9$$

Which property justifies Step 1?

- a. Associative Property of Addition
- b. Commutative Property of Addition
- c. Distributive Property
- d. Identity Property of Multiplication

\_\_\_\_\_ 11. Collin solved the equation  $2(x - 3) + 8x = 5x + 9$  using the following steps.

$$2(x - 3) + 8x = 5x + 9$$

$$\text{Step 1: } 2x - 6 + 8x = 5x + 9$$

$$\text{Step 2: } 2x + 8x - 6 = 5x + 9$$

$$\text{Step 3: } 10x - 6 = 5x + 9$$

$$\text{Step 4: } 5x - 6 = 9$$

$$\text{Step 5: } 5x = 15$$

$$\text{Step 6: } x = 3$$

Which property justifies Step 6?

- a. Commutative Property of Addition
- b. Distributive Property
- c. Addition Property of Equality
- d. Division Property of Equality

- \_\_\_\_\_ 12. Julie says her first step when solving the equation  $2(x - 3) = 16$  would be to use the Distributive Property. Andy says his first step would be to add 3 to both sides using the Addition Property of Equality. Who is correct?

- Andy is correct.
- Julie is correct.
- They are both correct.
- Neither is correct.

- \_\_\_\_\_ 13. What is the solution to the equation below?

$$\frac{1}{2}x - 3 = x + 1$$

- a.  $x = -8$
- b.  $x = -4$
- c.  $x = -\frac{8}{3}$
- d.  $x = -\frac{4}{3}$

14. What is the solution to the following equation?

$$-2x + 8 = -10$$

- a.  $x = -9$   
b.  $x = -1$

- \_\_\_\_\_ 15. Max practiced piano 5 more than 3 times as many minutes as Margie did. If Max practiced for 50 minutes, how many minutes did Margie practice?

- a. 45 minutes                      c. 15 minutes  
b.  $18\frac{1}{3}$  minutes                  d. 9.4 minutes

16. Chelsea went to the Virginia Living Museum to see the endangered red wolves. She paid \$12 admission and \$5 for lunch. If she has \$25 to spend, which equation could be used to find how much she has left to spend on souvenirs?

- a.  $12 + 5x = 25$   
b.  $x + 12 = 25$

- \_\_\_\_\_ 17. Wanita paid \$9 per yard for fabric, \$2 for a zipper, and \$3.50 for buttons. If she spent a total of \$30.25, how many yards of fabric did she buy?

- a. 2.25 yd                      c. 3.25 yd  
b. 2.75 yd                      d. 3.75 yd

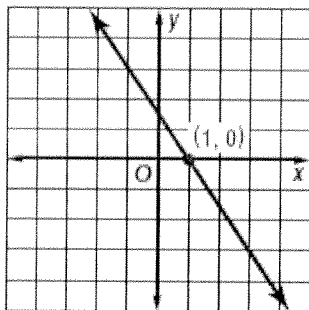
18. What is the slope of the line described by the equation  $3x - 4y = 12$ ?

- a.  $\frac{4}{3}$   
c.  $-3$
- b.  $\frac{3}{4}$   
d.  $-4$

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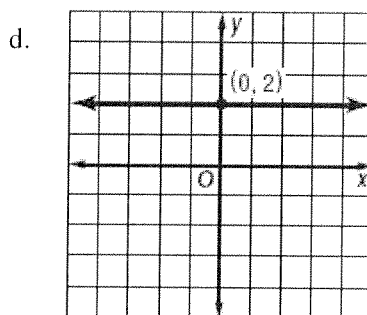
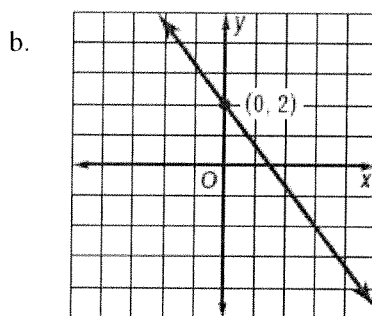
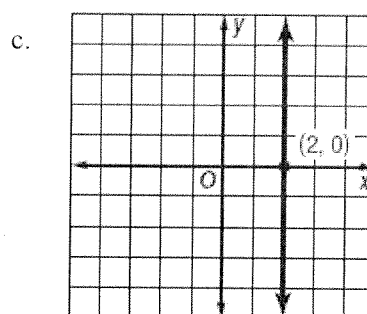
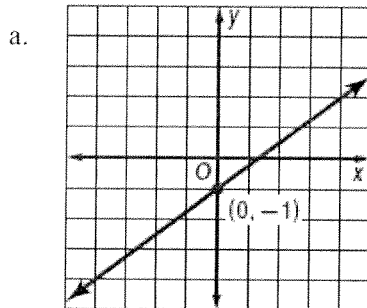
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\_\_\_\_ 19. Which term describes the slope of the line shown in the graph?



- a. Zero
- b. Undefined
- c. Positive
- d. Negative

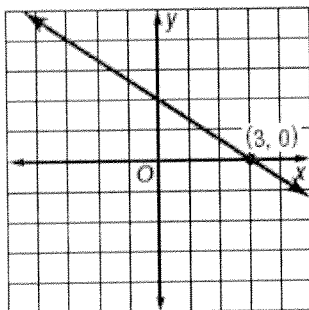
\_\_\_\_ 20. Which is the graph of a line with an undefined slope?



\_\_\_\_ 21. Which is an equation of the line with slope  $\frac{1}{2}$  that contains point (6, 4)?

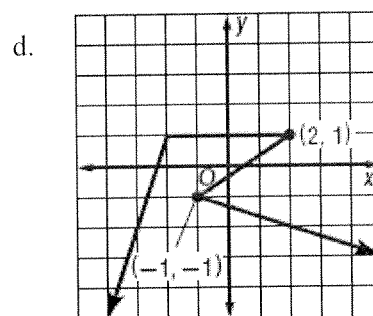
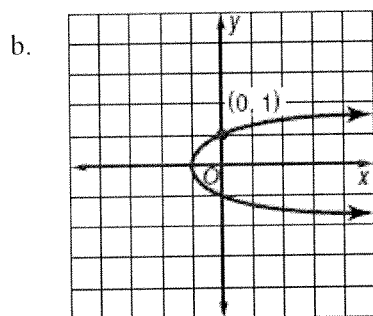
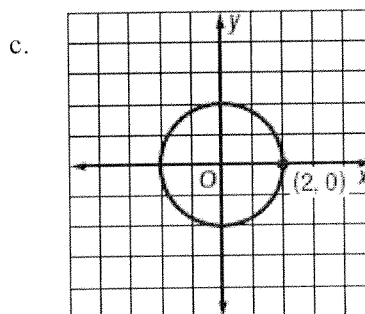
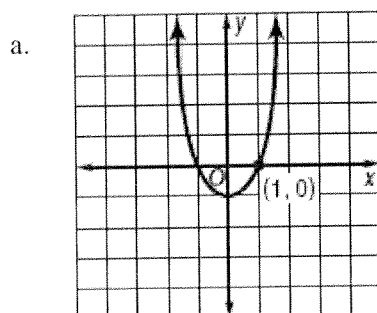
- a.  $y = \frac{1}{2}x + 1$
- b.  $y = \frac{1}{2}x - 2$
- c.  $y = 2x - 8$
- d.  $y = \frac{1}{2}x + 4$

- \_\_\_\_\_ 22. Which equation *best* represents the line shown in the graph?



- a.  $-2x + 3y = 6$   
 b.  $-2x - 3y = 6$   
 c.  $2x + 3y = 6$   
 d.  $2x - 3y = 6$

- \_\_\_\_\_ 23. Which graph represents a function of  $x$ ?



- \_\_\_\_\_ 24. The ordered pairs in the sets shown below are of the form  $(x, y)$ . In which set of ordered pairs is  $y$  not a function of  $x$ ?

- a.  $\{(2, 3), (-4, 1), (5, 8)\}$   
 b.  $\{(2, 3), (3, 2), (1, 2)\}$   
 c.  $\{(2, 3), (3, 3), (2, 7)\}$   
 d.  $\{(2, 3), (-4, -4), (8, 5)\}$

- \_\_\_\_\_ 25. Which relationship does *not* represent a function of  $x$ ?

- a.  $y = 2x + 1$   
 b.  $y = 8x^2$   
 c.  $y = 8$   
 d.  $x = 2$

\_\_\_\_\_ 26. Each table contains elements of an  $(x, y)$  relationship. Which table represents a function of  $x$ ?

a. 

$x$	6	4	3	4
$y$	-1	2	5	0

b. 

$x$	4	4	4	4
$y$	-2	2	3	9

c. 

$x$	6	4	3	-1
$y$	2	5	0	3

d. 

$x$	0	-1	-12	0
$y$	4	9	-3	2

\_\_\_\_\_ 27. What is the range of the following function?

$$\{(2, 7), (-3, 6), (4, -1)\}$$

a.  $\{-3, 2, 4\}$

b.  $\{-1, 6, 7\}$

c.  $-3 \leq x \leq 4$

d. All real numbers

\_\_\_\_\_ 28. What is the  $x$ -intercept of the graph of the function shown below?

$$2x + 6y = 18$$

a. 2

b. 3

c. 6

d. 9

\_\_\_\_\_ 29. What is the  $y$ -intercept of the graph of function shown below?

$$2x + 6y = 18$$

a. 2

b. 3

c. 6

d. 9

\_\_\_\_\_ 30. The following equation defines a function of  $x$ .

$$f(x) = |3x - 11|$$

What is the value of  $f(-4)$ ?

a. -23

b. -1

c. 1

d. 23

\_\_\_\_\_ 31. If  $f(x) = -x^2 + 6$ , what is the value of  $f(2)$ ?

- a. 2  
b. 4  
c. 8  
d. 10

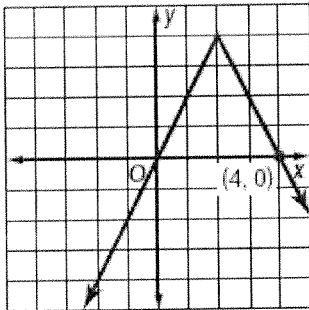
\_\_\_\_\_ 32. A function  $f(x)$  contains the points shown in this table.

$x$	2	5	7	1
$f(x)$	-1	3	4	5

Which is the value of  $f(5)$ ?

- a. 1  
b. 3  
c. 5  
d. 15

\_\_\_\_\_ 33. A function  $f(x)$  is shown in the graph below.



Which could be the value of  $f(1)$ ?

- a. 0  
b.  $\frac{1}{2}$   
c. 2  
d. 4

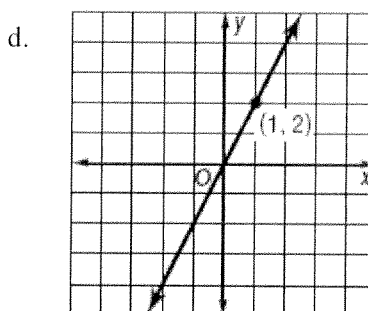
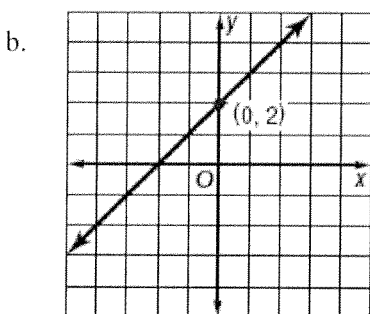
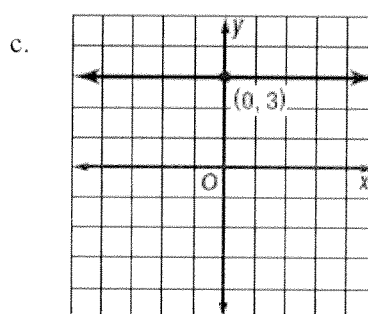
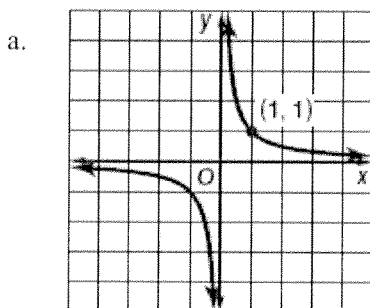
\_\_\_\_\_ 34. ~~The time required to paint a house,  $t$ , varies inversely with the number of painters,  $p$ . If 4 people can paint the house in 24 hours, which of the following is the equation for this inverse variation?~~

- a.  ~~$p = 6t$~~   
b.  ~~$p = \frac{96}{t}$~~   
c.  ~~$p = 96t$~~   
d.  ~~$t = \frac{p}{96}$~~

\_\_\_\_\_ 35. ~~The time required to paint a house,  $t$ , varies directly with the number of painters,  $p$ . If 4 people can paint the house in 24 hours, which of the following is the equation for this inverse variation?~~

- a.  ~~$p = 6t$~~   
b.  ~~$p = \frac{96}{t}$~~   
c.  ~~$p = 96t$~~   
d.  ~~$t = \frac{p}{96}$~~

\_\_\_\_\_ 36. Which could be the graph of a direct variation function?



\_\_\_\_\_ 37.  $(-5, 8), (-3, -8)$

a.  $y = -8x + 22$

c.  $y = 8x - 32$

b.  $y = -8x + 32$

d.  $y = -8x - 32$

\_\_\_\_\_ 38. What is the slope of a line that is perpendicular to the line whose equation is  $5x + 2y = 25$ ?

a.  $-\frac{5}{2}$

c.  $-\frac{2}{5}$

b.  $\frac{25}{2}$

d.  $\frac{2}{5}$

The table below shows Mia's bowling score each week she participated in a bowling league.

Week	1	2	3	4	5	6
Score	122	131	130	133	145	139

\_\_\_\_\_ 39.

a.  $y = 3.7x + 120.3$

c.  $y = -2.8x + 120.6$

b.  $y = 2.8x + 120.6$

d.  $y = -3.7x + 120.3$

\_\_\_\_\_ 40. Solve  $|3r - 6| = 21$ .

a.  $\{5, -5\}$

c.  $\{9, -5\}$

b.  $\{9, -9\}$

d. no solution



Starting from 150ft away, you brother rollerblades toward you and then passes you. He rollerblades at a constant speed of 15ft/sec. Identify the absolute value equation that represents at what time he is 30 feet away from you, if  $t$  represents the time.

- \_\_\_\_\_ 41.
- |                       |                       |
|-----------------------|-----------------------|
| a. $ 150 - 30t  = 30$ | c. $ -15t  = 30$      |
| b. $ 150 - 15t  = 30$ | d. $ 15t - 30  = 150$ |

- \_\_\_\_\_ 42. Which function has values  $f(1) = 13$  and  $f(6) = 3$
- |                      |                      |
|----------------------|----------------------|
| a. $f(x) = 2x + 11$  | c. $f(x) = -2x + 15$ |
| b. $f(x) = -2x + 11$ | d. $f(x) = 2x + 15$  |

- \_\_\_\_\_ 43. What is the value of  $x$  if Lines 1 and 2 are parallel?

Line 1 : (1, 15) and (2, 9)

Line 2: (x, -3) and (3, 3)

- |       |       |
|-------|-------|
| a. -4 | c. 4  |
| b. 6  | d. -6 |

Find the rate of change for the given table values.

Time (months)	Hair Length (in.)
0	8
3	9
6	10

- \_\_\_\_\_ 44.
- |                 |                 |
|-----------------|-----------------|
| a. .33 month/in | c. .33 in/month |
| b. .5 month/in  | d. .5in/month   |

### Numeric Response

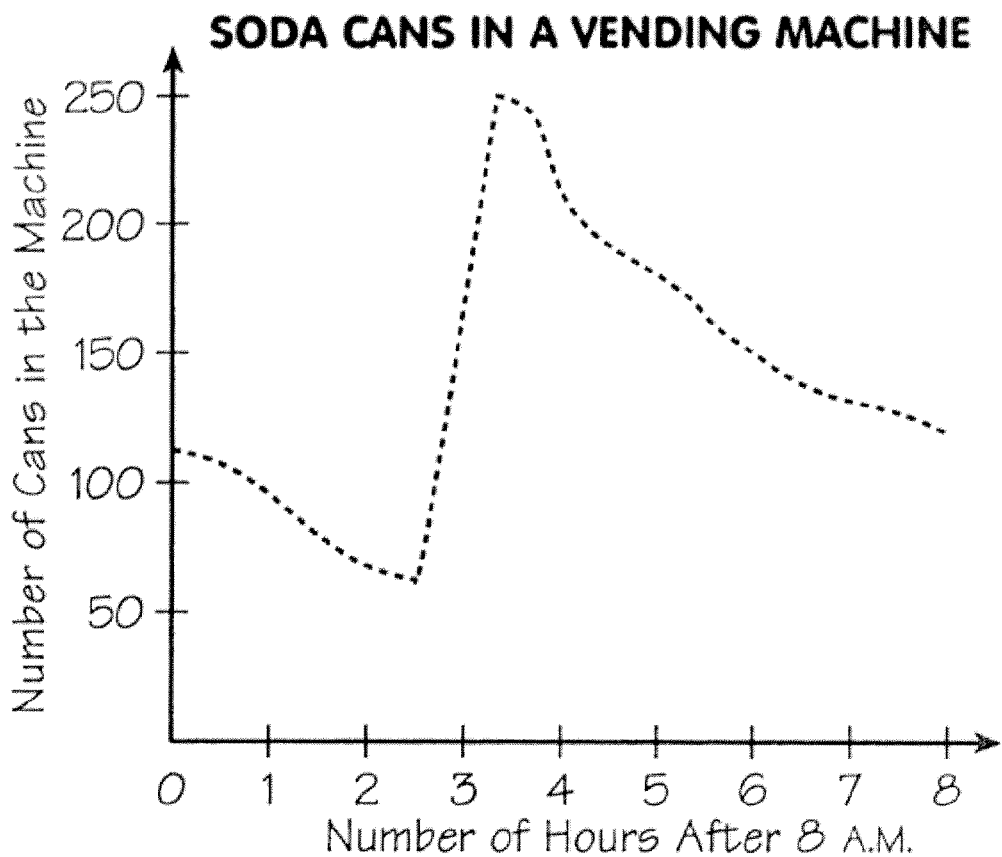
45. Simplify:  
 $5(n - 8) - 4(-2 + n)$

46. Simplify:  
 $\frac{4^3 - 6}{12 - 10}$

47. The lengths of the sides of a triangle are  $y$ ,  $y + 1$ , and 7 centimeters. If the perimeter is 56 centimeters, what is the value of  $y$ ?

48. Given the formula  $F = \frac{9}{5}C + 32$ , the temperature is  $95^{\circ}\text{F}$ . What is the temperature in degrees Celsius?

49.



Describe what happened to the number of cans of soda in the vending machine.

50. Solve:

$$20 - 9w = 4(15 - w)$$

51.

$$2(t + 5) > 4t - 7(t + 3)$$